

**Drawing Amendments**

**Remarks**

This is in response to Office Action dated 01/25/2006. A Petition for Extension of Time to Reply is enclosed, with the appropriate fee authorization. Acceptance is requested.

These Remarks refer to and follow the sequence and numbering of paragraphs of the Examiner's Detailed Action.

1, 2 & 3      Figures which are prior art have been designated "PRIOR ART" in the corrected drawing sheets, with appropriate discussion in the enclosed Letter to the Chief Draftsperson. Reference characters have been added as required, in the text and in the drawings as appropriate. The Examiner is thanked for the reminder.

4.      Figure 8 has been canceled, with appropriate discussion in the enclosed Letter to the Chief Draftsperson. The Examiner is asked to reconsider Figure 3, which indeed does show detail of the apparatus in market dress as a large canteen.. Figure 3 has been treated for greater contrast. [Note:] Details such as items 12-14 of Figure 3 are discussed in the paragraph at lines 3-16 of page

17. These details include indicator cap 12, zippers 13, outer wall 14, and inner wall 15.

5. Corrected drawings are included in this Response, in the above section headed "Drawing Amendments," with appropriate discussion in the enclosed Letter to the Chief Draftsperson.

6. The Abstract has been shortened.

7. The reference character 5 has been corrected on page 17. Character 4 is correct.

8-12 Claims 1-18 have been canceled. New Claims 19-24 have been written with the Examiner's objections in mind, and will be discussed with respect to the corrections or elimination of objectionable matter.

The Examiner will be asked to reconsider and withdraw the Ressler et al. '768 citation, and the Eden et al. '664 citation, later in these Remarks with respect to new Claims 19-24. The short discussion of these citations in the following two paragraphs is for identification only. The claims will be discussed in detail later, with respect to all prior art cited.

### **Section 102 Anticipation**

Section 102 (states the law of anticipation. This law rigorously requires actual anticipation; i.e., all the elements and relationships of the invention claimed in the application presented in a single reference.

### **Paragraphs 13-16 -- Ressler et al. '768**

Paragraphs 13-16 of the Detailed Action apply Section 102(b) selectively to most of Claims 1-18. Note that Claims 1-3 have been canceled without traverse, and note also that Claims 4-18 have been canceled in favor of a shortened list of new claims, Claims 19-24. The Examiner will be asked to reconsider Ressler et al. '768 with respect to new Claims 19-24. Ressler et al. '768 does not have " ... a microdischarge array ..." but has a bent tubular UV lamp 34 (Fig. 4).

Ressler et al. '768 deals with the problems of radiation blocking of ultra-violet (UV) sterilization of opaque liquids. The UV radiation does not penetrate well because of the opacity. The Ressler et al. '768 solution turbulent flow, so as to expose all the liquid to the UV lamp. This is the UV disinfection mentioned in the prior art section of this patent application. Ressler et al. '768 adds turbulence to counteract the opacity by putting all the liquid within the limited range of the UV radiation of the lamp. Note the distinctions of the paragraph starting at line 5 of page 7 of this application. See, especially, lines 9-12, which discusses systems similar to that of Ressler et al. '768. The UV lamp dangerously adds fragility, weight and power problems in a human-portable system. These are not

the problems of this patent application, nor are these the solutions of this patent application;

### **Paragraphs 16-21 -- Cooper et al. Publication US 2004/0144733**

Paragraphs 16-21 discuss Cooper et al. Publication US 2004/0144733, a "high-pressure gas discharge device and methods of using..." As noted above, Claims 1-18 have been canceled. New Claim 19, which is the generic parent claim for Claims 20-23 and is similar to interference claim 24, will be discussed in detail later in these Remarks. Note here, however, that Cooper et al. '733 deals with a high-pressure gas discharge device (see Abstract). See also page 4 paragraph [0069] in which "... conventional LP ( low pressure) Hg ... sources ..." are differentiated.

### **Paragraphs 22-29 – Multi- Reference Concerns for Obviousness**

Paragraph 22 states Section 103, which defines the obviousness concern when references are combined. Section 103 statutory obviousness and requires no further discussion other than to note that obviousness in patent law generally is treated as a presumption requiring an objective statement combining multiple references according to included recommendations. A principle

reference alone, not sufficient as a Section 102 anticipation, needs a specific suggestion to combine it with one or more supplemental references. The presumption also requires that the person of ordinary skill in the art would combine them without experimentation and with confidence in success. The traditional person of ordinary skill is the journeyman, not the master craftsman and not the apprentice.

Claims 1-18 have been canceled. Of these, Claims 1-3 have been canceled without traverse. Claims 4-18 have been canceled in favor of new Claims 19-24.

Paragraphs 23-27 add an obviousness concern based upon the concern that it might be obvious to replace the UV lamp of Ressler et al. '768 with the microdischarge array of Eden et al. '664 and also the construction details of Betterly et al. publication. This concern will be discussed later in these Remarks in discussion of Claims 19-24.

Paragraphs 27-29 add an obviousness concern based upon the concern that it might be obvious to replace the UV lamp of Ressler et al. '768 with the microdischarge array of Eden et al. '664. This concern will be discussed later in these Remarks in discussion of Claims 19-24.

Paragraphs 30-36 discuss details including the well-known process of evacuate-and-backfill for gas introduction into a device, in terms of Product-by-Process, and characteristics of emission radiation. Such details may be presented as additional elements and relationships in claims depending from

generic new Claim 19. This concern will be discussed later in these Remarks in discussion of Claims 19-24.

### **Paragraphs 30-36**

30.-36 Paragraphs 30-36 apply concerns that combinations of Ressler et al. '768 and Eden et al. '664 and Betterly et al. '913 and Benoit et al. '344 and Geusic '603 might make certain claims obvious. The particular claims fall within the group (Claims 1-18) which have been canceled. This concern will be discussed later in these Remarks in discussion of Claims 19-24.

Claims 1-18 have been canceled. Of these, Claims 1-3 have been canceled without traverse. Claims 4-18 have been canceled in favor of new Claims 19-24, which will be discussed separately with respect to the appropriate citations of prior art cited against any of the canceled claims.

New Claim 20 replaces Claim 9, specifying Xel as the "selected emission material." There is no intention of making the evacuation-and-backfilling process into a stand-alone inventive-level process, but the Xel has significant non-obvious advantages. The "evacuate and backfill" process is a well-known

process in making microdischarge arrays and many other gas-filled devices, and is included as a dependent claim only because Xel is preferred. This concern will be discussed later in these Remarks in discussion of Claim 20 with all concerns.

Paragraphs 31-36 deal with various combinations of references invoking Section 103 obviousness concerns affecting canceled Claims 9-16. All of these concerns will be discussed later in these Remarks in discussion of Claim 19 as parent claim to dependent Claims 21-23 and interference Claim 24.

37. The Examiner is thanked for the summary and communication information in this paragraph. No additional response is required. This paragraph concludes the discussion keyed specifically to the paragraphs of the Examiner's Detailed Action.

#### **Discussion of New Claims Replacing Original Claims**

Further paragraphs relate to five new Claims 19-23, which effectively replace all eighteen of canceled Claims 1-18, plus one more new claim, Claim 24, which is copied for purposes of interference.

New Claim 19 is a stand-alone claim to the invention, Claim 19 identifies elements and relationships roughly equivalent to a composite of canceled Claims 4-8. New Claim 19 is formatted to supply not only a proper definition of



the invention, but also to supply proper antecedent basis for dependent Claims 20-23.

Claim 19 distinguishes from Ressler et al. '768 in that it integrates elements and relationships vital to a personal water purification device, featuring portability and effectiveness. Portability comes from a lightweight envelope; effectiveness comes from a flexible microdischarge array which emits ultraviolet radiation to treat the water within the envelope. Ressler et al. '768 does not feature portability, but rather appears to be designed for permanent household use, with permanent connections to plumbing and electric systems. Ressler et al. '768 does not have a microdischarge array at all, but uses a bent tube UV lamp. Ressler et al. '768 features a baffle system to provide turbulence and present the opaque fluid of concern to the UV lamp. The Examiner is asked to withdraw Ressler et al. '768 as a primary reference under either of Section 102 or Section 103, since there is no teaching of a personal water purifier and since Ressler et al. '768 teaches the use of a standard UV bulb. The Examiner is asked to withdraw Ressler et al. '768 as cited against 19 and 24 and by extension against its dependent Claims 20-23. Similarly, the Examiner is asked to withdraw Ressler et al. '768 insofar as it might be cited against Claim 24. Certainly, the UV discharge array is not taught by Ressler et al. '768, and certainly there is not recommendation to make to add to or substitute the teaching of Ressler et al. '768 the teaching of the other patents cited patents.

New Claim 20 stands alone and also provides a parent for dependent Claims 21-23 which provide details of the appropriate elements.

**Discussion of New Claim 24 Copying a Claim for Interference**

II. This paragraph relates to Claim 24, which is copied from Claim 1 of Cooper et al. publication '733 for purposes of interference determination. This patent application was filed earlier than the filing date of Cooper et al., but Cooper et al. may have rights from an earlier application.

39. New Claim 24 was copied from Cooper et al. published patent application US2004/0144733. It reads on Figure 1 and other figures of this application, as follows:

A system for treating a fluid comprising:

a treatment chamber coupled to a fluid outlet, and

at least one micro-discharge gas discharge light source wherein the light source is configured to expose a fluid passing through the treatment chamber to radiation.

The Examiner is requested to declare any appropriate Interference.

Section 103(a), of course, is not an ordinary supposition. It generally requires multiple, or at least two, references. A principal reference supplies the general situation and indicates a need for a solution to an included problem; a secondary reference supplies the solution to the problem in the set of situations including the principal reference. This invention deals with a different problem, identified in the Field of the Invention as “... portable personal water purification system.”

**SUMMARY**

Six claims remain. The prior art has been fully differentiated. Allowance is requested for Claims 19-23. Claim 24 has been copied for purposes of Interference. Appropriate action is requested.

Marc I. Zemel, Leszek Wojcik

and Shyam Raghunandan, Inventors

By Carl C. Kling  
Carl C. Kling, Attorney (Reg. 19137)